

## **ABSTRACT**

A duty cycle and period of clock stimulus signals of power conversion device are independently altered to handle in-rush current. In one embodiment, transient power supply turn on current observations coupled with changing of the duty cycle and period of clock stimulus (frequency) are used to select a duty cycle and frequency for the power conversion device. A programmable logic device is programmed with firmware in one embodiment to independently alter the duty cycle of the power conversion device. Optimization of the duty cycle and frequency occurs empirically at a higher level of assembly, allowing adjustments that account for both parasitic and process induced variations and system configuration adjustments. In further embodiments, in-rush current is measured during operation of the power conversion device, and the duty cycle and frequency are adjusted in real time in response to such measured current.